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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Phil Van Dyke

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04/09/2008

EPSON RESEARCH AND DEVELOPMENT INC

INTELLECTUAL PROPERTY DEPT

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SAN JOSE, CA 95131

EXAMINER

ABDULSELAM, ABBAS I

ART UNIT

PAPER NUMBER

2629

MAIL DATE

DELIVERY MODE

04/09/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/815,317

Applicant(s)

VAN DYKE, PHIL

Examiner

ABBAS I. ABDULSELAM

Art Unit

2629

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 March 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6, 8-10, 15-25, 27 and 28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8-10, 15-25 and 27-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/06)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. This office action is in response to a communication filed 03/05/2008. Amendments on 03/05/2008 are entered. Claims 1-6, 8-10, 15-25 and 27-28 are pending. Claims 7, 11-14 and 26 are canceled.

Allowable Subject Matter

2. The indicated allowability of Claims 1-6, 8-10, 15-25 and 27-28 is withdrawn in view of further examination. Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-6, 8-10, 15-18, 20-25 and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by Worley III (USPN 6326980).

Regarding claims 1 and 18, Worley, III (USPN 6326980) teaches a digital display system, a data processor(*Fig. 10 (1004, 1008, 926, 954), see fig. 10 in which a processing unit 1004 controls transfer state machine 1008 which outputs via control buses (926, 954)*), electro-optic display(*Fig. 9 (914, 926, 928)*); and a display controller (*Fig. 9 (900)*) for reducing power consumption of an electro-optical image display (*Fig. 9 (900), a display driver circuit 900, col.*

4, lines 46-49, bits of a compound data words are arranged in portions of the compound data words to minimize intensity differences between the respective portions, note that minimization of intensity differences inherently involves reduction of power consumption), comprising: a source of a set of image data words (Fig. 9 (900, 902)) corresponding to individual pixels of an image (Fig. 9 (902), col. 9, lines 28-29, compound data generator 902 receives 8-bit binary-weighted data words); an output port (Fig. 9 (914, 924, 926)) for making available to the electro-optical image display a modified set of image data words corresponding to individual pixels of the electro-optical image display (Fig. 9 (914), col. 11, lines 15-18, output controller 914 asserts control signals on LCD control bus 926, causing micro-LCD 928 to load the bits asserted on data bus 924 onto the appropriate pixel cells.); and a mode control circuit (Fig. 9 (908), 924)) adapted to substitute for a selected subset of the set of image data words the image data words from one or more contiguous pixels and to provide the resulting modified set of image data words to the output port to be made available to the electro-optical image display (Fig. 9 (908), col. 9, lines 43-50, Data planarizer 908 receives the compound data, via compound data bus 936, in 10-bit compound data words, each 10-bits (Pr[0-9]) corresponding to a gray scale value to be written to a particular pixel (r) of micro-LCD 928, such that the data planarizer 908 accumulates the 10-bit gray scale data for 32 pixels and reformats the data into 32-bit data words, each 32-bit word containing one bit from each of the group of 32 10-bit compound data words, col. 9, lines 20-24, note that the driver circuit 900 transfers the planarized compound data words, via 32-bit data output bus 924, along with control signals, via LCD control bus 926, to a micro-LCD 928), and wherein the image data words of the modified set of image data words are made available to the electro-optical display serially, and

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the contiguous pixels whose image data words are substituted precede the image data words for which they are substituted (*col. 9, lines 20-24, co. 9, lines 43-50, Fig. 9 (908), data planarizer 908 accumulates the 10-bit gray scale data for 32 pixels and reformats the data into 32-bit data words, each 32-bit word containing one bit from each of the group of 32 10-bit compound data words, , note that the driver circuit 900 transfers the planarized compound data words, via 32-bit data output bus 924, along with control signals, via LCD control bus 926, to a micro-LCD, also note that that reformatting the data involves two different sets of data (data prior to reformatting and after reformatting, and data prior to reformatting naturally comes first)).*

Regarding claim 20, Worley teaches a method for reducing power consumption of an electro-optical image display (*Fig. 9 (900), a display driver circuit 900, col. 4, lines 46-49, bits of a compound data words are arranged in portions of the compound data words to minimize intensity differences between the respective portions, note that minimization of intensity differences inherently involves reduction of power consumption*), comprising: providing a set of image data words corresponding to individual pixels of an image (*Fig. 9 (900, 902), col. 9, lines 28-29, compound data generator 902 receives 8-bit binary-weighted data words*); substituting for a selected subset of the set of image data words the image data words from one or more contiguous pixels (*Fig. 9 (908), col. 9, lines 43-50, Data planarizer 908 receives the compound data, via compound data bus 936, in 10-bit compound data words, such that the data planarizer 908 accumulates the 10-bit gray scale data for 32 pixels and reformats the data into 32-bit data words, each 32-bit word containing one bit from each of the group of 32 10-bit compound data words*); and making available to the electro-optical image display the modified

set of data words resulting from the substituting (*col. 9, lines 43-50 note that each 10-bits (Pr(0-9)) corresponding to a gray scale value is to be written to a particular pixel (r) of micro-LCD 928, col. 9, lines 20-24, the driver circuit 900 transfers the planarized compound data words, via 32-bit data output bus 924, along with control signals, via LCD control bus 926, to a micro-LCD 928*), and wherein the image data words of the modified set of image data words are made available to the electro-optical display serially, and the contiguous pixels whose image data words are substituted precede the image data words for which they are substituted(*col. 9, lines 20-24, co. 9, lines 43-50, Fig. 9 (908), data planarizer 908 accumulates the 10-bit gray scale data for 32 pixels and reformats the data into 32-bit data words, each 32-bit word containing one bit from each of the group of 32 10-bit compound data words, , note that the driver circuit 900 transfers the planarized compound data words, via 32-bit data output bus 924, along with control signals, via LCD control bus 926, to a micro-LCD, also note that that reformatting the data involves two different sets of data (data prior to reformatting and after reformatting, and data prior to reformatting naturally comes first)*)).

Regarding claims 2 and 21, Worley teaches the electro-optical image display is a two-dimensional image display (*Fig. 9 (828), col. 10, lines 7-9, micro-LCD has 786,432 pixels (1024x768)*)).

Regarding claims 3 and 22, Worley teaches the electro-optical image display is a liquid crystal display/the making available is done in a format suitable for a liquid crystal display (*Fig.*

9 (828), col. 10, lines 7-9, micro-LCD has 786,432 pixels (~1024x768)).

Regarding claims 4 and 23, Worley teaches the electro-optical image display is a two-dimensional display (*Fig. 9 (828), col. 10, lines 7-9, micro-LCD has 786,432 pixels (~1024x768)).*

Regarding claims 5, 9 and 24, Worley teaches the selected subset of image data words comprises a subset of the image data words having a selected spatial periodicity (*Fig. 20 (2002, 2004, 2006), a field sequential data, col. 19, lines 25-39).*

Regarding claims 6, 8, 10, 25, and 27, Worley teaches the number of contiguous pixels whose image data words are substituted may be selectively determined (*col. 11, lines 51-61, first and second group of pixels).*

Regarding claim 15, Worley teaches the source of image data words comprises a memory and a memory controller (*Fig. 9 (946, 948, 910, 912), control buses (946, 948), frame buffers 910 and 912), and the mode control circuit (Fig. 9 (908, 924), data planarizer (908), data output bus (924))* comprises a display interface circuit (*Fig. 9 (924), data output bus (924), note that as shown in Fig. 9, the data output bus (924) is directed toward a micro-LCD (9128)).*

Regarding claim 16, Worley teaches an input port (*Fig. 9 (904, 906, 918, 920, 922)*, *input controller 904, a control selector 906, input terminals 918, 920, and 922*) for receiving image information from a data processor for storing an image in the memory (*Fig. 9 (910, 912)*, *col. 9, lines 55-59, note in Fig. 9 in which input terminals 918, 920, and 922 passing signals through input controller 904, which uses the signals to transfer planarized data from data planarizer 908, via 32-bit data bus 930 into frame buffers A 910 and B 912*)).

Regarding claim 17, Worley teaches the input port (*Fig. 9 (904, 918, 920, 922, 906)*, *input controller 904, a control selector 906, input terminals 918, 920, and 922*) comprises a host interface circuit (*Fig. 9 (906), a control selector (906)*) for receiving data and providing that data to the image data memory controller for storage in the memory (*Fig. 9 (910, 912)*, *col. 10, lines 11-13, the transfer of data from data bus 930 into frame buffers 910 and 912 is also controlled by input controller 904 in cooperation with control selector 906*).

5. Claims 19 and 28, is rejected under 35 U.S.C. 103 (a) as being unpatentable by Worley III (USPN 6326980) in view of Aoki et al. (USPN 5650844).

Regarding claim 19, Worley does not teach a camera to provide image information to the source of a set of image data words corresponding to individual pixels of the image.

Aoki et al. (USPN 5650844) on the other hand teaches as shown a CCD camera 12 that has a built-in CCD area sensor that measures the contrast of the LCD (Fig. 1 (12) (col. 4, lines 12-18).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine to combine Worley's display driver circuit (900) shown in Fig. 9 with Aoki's CCD camera 12 as shown in Fig. 1, because the use of CCD camera 12 helps function LCD panel image quality inspection as taught by Aoki et al (col. 4, lines 5-6).

Regarding claim 28, Worley teaches the source of image data words comprises a memory and a memory controller (*Fig. 9 (900, 902)*).

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following art is cited for further reference.

U.S. Pat. No. 6,518,945 to Pinkham

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Abbas I. Abdulsalam whose telephone number is 571-272-7685. The examiner can normally be reached on Monday through Friday from 9:00 A.M. to 5:30 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Hjerpe, can be reached on 571-272-7691. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Abbas I Abdulsalam/

Primary Examiner, Art Unit 2629

/A. I. A./

April 6, 2008